

**SEMINOLE COUNTY GOVERNMENT  
AGENDA MEMORANDUM****SUBJECT:** Potable Water Budget Ordinance and Manual Presentation**DEPARTMENT:** Environmental Services **DIVISION:** Water and Wastewater**AUTHORIZED BY:**  **CONTACT:** Liz Block **EXT.** 2121  
**Robert G. Adolphe, P.E., Director** **Water Conservation Coordinator****Agenda Date** 10/26/04 **Regular** ☐ **Consent** ☐ **Work Session** ☐ **Briefing** ☒  
**Public Hearing – 1:30** ☐ **Public Hearing – 7:00** ☐**MOTION/RECOMMENDATION:**

Seeking Board direction on the development of a Potable Water Budget Ordinance and Manual that requires Land Development Code changes.

**BACKGROUND:**

Staff is proposing to develop a Potable Water Budget process. This process would require residential subdivisions to be designed to stay within water demand for the development. Seminole County Consumptive Use Permit (CUP) allocations are based on reasonable water use. Currently, certain types of developments and subdivisions have consumed water in excess of what SJRWMD considers to be a reasonable use. Also, existing permits contain requirements, such as reductions in per capita and allocation limits. To meet permit requirements as well as provide for future growth, the Potable Water Budget process is necessary.

Water demand planning, concurrency, and connection fees are based on the Equivalent Residential Connection (ERC). One ERC is defined as 350 gallons per day (gpd) of potable water per residential unit, and is designed to use potable water for both indoor and irrigation water use.

Reviewed by:  
Co Atty: na  
DFS: \_\_\_\_\_  
Other: \_\_\_\_\_  
DCM: 33  
CM: 14

File No. BESW01

To implement a Potable Water Budget requires changes to the Land Development Code. A draft ordinance is attached that outlines procedures that would be incorporated as part of the development review process. The LDC would reference the attached manual that includes descriptions of how the Potable Water Budget process is incorporated in development review, concurrency, and other processes. Also, the manual provides examples of calculations, plans, and educational material. The residential developer would provide a Potable Water Budget Plan that demonstrates design features to maintain a demand of one ERC per residential unit. The developer may select options and follow procedures outlined in the manual, or submit an original water budget study and/or design that satisfactorily demonstrate that development can maintain committed capacity.

Neighboring utilities that have recently passed or are developing similar requirements include the City of Sanford and Volusia County. Based on Board direction, staff is prepared to present this information to the Development Advisory Board, the Sustainable Communities Advisory Council, the Florida Irrigation Society, and the Homebuilders Association of Metro Orlando. Once complete, the final draft ordinance and manual will be presented to the Board for authorization to advertise.



***ENVIRONMENTAL SERVICES  
DEPARTMENT***

***POTABLE WATER BUDGET***

***Concept  
Ordinance  
and Manual***

## ***THE DILEMMA:***

### ***Environmental Services Department must:***

- *Meet CUP per capita reduction requirements*
- *Stay within current and future CUP allocation limitations*
- *Plan for demand from current and future growth*

# **THE PROPOSED SOLUTION: THE POTABLE WATER BUDGET**

Purpose: *Require the design of residential subdivisions to stay within one ERC  
(350 gallons per day per unit)*

Ordinance: *Changes to LDC would outline procedures in the development review process*

Manual: *Provides options to reduce demand and associated requirements*

# **POTABLE WATER BUDGET MANUAL: OPTIONS**

- 1. Retain native vegetation to remain non-irrigated*
- 2. Install Water Wise landscaping*
- 3. Install microirrigation in bed areas*
- 4. Install reclaimed water system*
- 5. Develop alternative water sources for irrigation*
- 6. Irrigation controlled with advanced technology*

**AN ORDINANCE AMENDING THE LAND DEVELOPMENT CODE OF SEMINOLE COUNTY; PROVIDING FOR POTABLE WATER BUDGET SUBMITTAL REQUIREMENTS; PROVIDING FOR CODIFICATION; PROVIDING FOR SEVERABILITY AND PROVIDING AN EFFECTIVE DATE.**

**WHEREAS**, Section 125.01(1) (K), Florida Statutes, authorizes the Board of County Commissioners (Board), to provide and regulate water supply and conservation programs throughout the geographical area of Seminole County; and

**WHEREAS**, the Board has evaluated the concurrency and subdivision provisions of the Seminole County Land Development Code (Code) relative to County compliance with permits issued by and policies of the St Johns River Water Management District along with the need for additional and permanent water conservation measures caused by a growing population; and

**WHEREAS**, the highest priority for use of potable water is human consumption and it is the intent of the County to minimize the use of potable water supplies for non potable uses; and

**WHEREAS**, the County recognizes that potable water is a valuable resource and desires to outline County management and enforcement responsibilities to facilitate use of potable water to the least extent; and

**WHEREAS**, said flexibility would allow landscaping to be irrigated in a more water conserving manner; and

**WHEREAS**, necessary revisions to the Code include establishing methods by which new developments will be planned such that future potable water use will be maintained at capacity allocated through Utility Agreements.

**WHEREAS**, significant involvement has been achieved relative to the proposed changes to the County's Codes as set forth in this Ordinance; and

**WHEREAS**, the Board of County Commissioners of Seminole County hereby finds that this Ordinance is consistent with the objectives, goals, and policies of the Seminole County Comprehensive Plan; and

**WHEREAS**, the Seminole County Home Rule Charter requires that an Economic Impact Statement be prepared to address the potential impacts and economic costs of this Ordinance upon the public and taxpayers of Seminole County, and such Economic Impact Statement has been prepared and has been made available for such public review and copying prior to the enactment of this Ordinance in accordance with the provisions of the Seminole County Home Rule Charter,

**NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF SEMINOLE COUNTY, FLORIDA:**

**Section 1.** Section 10.3, Land Development Code of Seminole County, is hereby amended as follows:

**Sec. 10.3. Concurrency; general provisions**

(a) No final development order shall be issued by the county after March 31, 1992 and no previously approved development may cause a change in use upon a parcel of property unless there is sufficient available capacity of concurrency public facilities to meet the standards for levels of service as established in the 1991 Seminole County Comprehensive Plan for the existing population, vested development as projected by the Planning and Development Director and for the proposed development according to the following time requirements:

1) As to potable water, sanitary sewer, solid waste and drainage concurrency public facilities, the necessary concurrency public facilities must be available and in place at the time the development is authorized in accordance with the 1994 Vision 2020 Seminole County Comprehensive Plan or the development order or permit is issued subject to the condition that the necessary concurrency public facilities will be in place when the impacts of the development occur or the necessary concurrency public facilities are under construction at the time the development is authorized or the necessary concurrency public facilities are guaranteed in an enforceable development agreement that requires that the necessary facilities will be in place when the impacts of development occur. All final development orders shall be conditioned on the requirement that building permits shall not be issued for the subject property until the capacity of the public facility or facilities set forth in this subsection meet the adopted levels of service standards for said concurrency public facility or facilities. As to solid waste, the level of service standard shall be a countywide standard. As to stormwater management, the level of service standard shall be a site specific standard. As to potable water and sanitary sewer, the level of service standard shall be based upon the appropriate service areas as set forth in the 1994 Vision 2020 Seminole County Comprehensive Plan.

2) The Applicant shall be required to demonstrate that the proposed development will stay within the allocated ERC capacity for potable water pursuant to policies and procedures as set forth by the Director of the Environmental Services Department. Policies and procedures are set forth in the Water Budget Manual. The applicant shall be required to develop a Potable Water Budget, which is a document describing design features of a development that will cause the development to remain within potable water capacity reserved by the development. The applicant shall be required to execute a water budget agreement.

**Section 2.** Section 35.43, Land Development Code of Seminole County, is hereby amended to read as follows:

**Sec. 35.43. Required submittals for preliminary plan**

(8) Potable Water Budget. A potable water budget concept statement in accordance with the Potable Water Budget Manual indicating method(s) for maintaining projected potable water demand within the allocated ERC capacity.

**Section 3.** Section 35.44, Land Development Code of Seminole County, is hereby amended to read as follows:



## **Sec. 35.44. Required submittals for final plat**

(e) *Other required submittals.*

(6) *Potable Water Budget.* A Potable Water Budget in accordance with the Potable Water Budget Manual demonstrating design features that maintain projected potable water demand within the allocated ERC capacity.

**Section 4. Codification.** It is the intention of the Board of County Commissioners that the provisions of this Ordinance shall become and be made a part of the Seminole County Code and the word “ordinance” may be changed to “section,” “article,” or other appropriate word or phrase and the sections of this Ordinance may be renumbered or relettered to accomplish such intention; providing, however, that Sections 4, 5, and 6 shall not be codified.

**Section 4. Severability.** If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance which can be given effect without the invalid provisions or application, and to this end the provisions of this Ordinance are declared severable.

**Section 5. Effective Date.** This Ordinance shall take effect upon filing a copy of this Ordinance with the Department of State by the Clerk of the Board of County Commissioners.

# POTABLE WATER BUDGET MANUAL

## Introduction

Water demand planning, concurrency, and connection fees for the Seminole County Water and Wastewater Division are based on the Equivalent Residential Connection, or ERC. One ERC is defined as 350 gallons per day (gpd) and is designed to include both indoor and irrigation water use. This volume of water is roughly equivalent to the average per capita water use goal established by the St Johns River Water Management District of 150 gallons per person per day (gpcd) (150 gallons per person X 2.55 persons per household).

The one ERC value is defined in a number of documents, including Vision 2020 Comprehensive Plan, Utility Agreements, Rate Resolutions, the Concurrency Management System Applicant Handbook, and County Code (Sec 270.182).

Average residential water use throughout most of Seminole County water service areas is reasonably close to one ERC. However, certain types of developments and subdivisions have consumed water in excess of one ERC. The inevitable clustering of these types of developments has led to several water supply and regulatory issues.

- Water supply infrastructure for developments that were planned based on one ERC when actual average water use was two to five times higher, leading to low pressure problems during peak demand and potential firefighting safety issues.
- The need for continual and costly upgrade of the utility water supply infrastructure to meet disproportionate demand.
- High per capita generating undue attention from regulatory authorities (specifically SJRWMD), and resulting in strictly conditioned Consumptive Use Permits with shorter durations.

Increased regulatory pressure and limits on permitted groundwater allocation necessitate effective water conservation measures. A regulatory basis has been established to require developments to stay within concurrency and capacity water consumption. The purpose of this manual is to provide procedures whereby developments are designed from the start to achieve the one ERC capacity purchased through connection fees. As part of the development review process, the developer shall provide a Potable Water Budget Plan that demonstrates design features to maintain committed capacity. The developer may select options and follow procedures outlined in this manual, or submit an original water budget study and/or design that satisfactorily demonstrates that the development can maintain committed capacity.

## Concurrency

Potable water concurrency public facilities are determined based on ERCs. A developer's Potable Water Budget Plan shall demonstrate that developments are designed to stay within ERC capacity as required in Sec. 10.3 LDC. No final development order shall be issued and no previously approved development may cause a change in use upon a parcel of property unless a Potable Water Budget Plan has adequately demonstrated that developments are designed to stay within ERC capacity.

### Who Must Submit a Potable Water Budget Plan?

A Potable Water Budget Plan must be submitted for all residential subdivisions. Vested developments shall submit a Potable Water Budget Plan for all new phases. Exceptions shall be made for parcel(s) planned with less than 2200 square feet (0.05 acres) of irrigated area (Example A shows how this value was derived).

Developments which are required to install a reclaimed water system under Sec. 30.1234 and where reclaimed water will be available to charge the reclaimed system upon installation of landscaping are exempt from submitting a potable water budget plan. Potable Water Budget requirements for developments required to install a reclaimed water system and where reclaimed water will be available in the future will be determined on a case by case basis. Potable Water Budget requirements will be determined based on the estimated amount of time until reclaimed water becomes available, and the estimated potable water demand for irrigation until reclaimed water becomes available.

### Planning Review Submittals for Subdivisions

In accordance with Sec. 35.43 LDC, a potable water budget concept statement shall be submitted as part of the preliminary plan. The concept statement shall briefly outline the options or study design features that will be included in the Potable Water Budget Plan. An example potable water budget concept statement is included in Example B.

In accordance with Sec. 35.122 LDC, a Potable Water Budget Plan developed in accordance with the Potable Water Budget Manual shall be submitted as part of the final Development Order prior to construction. An example Potable Water Budget Plan is included in Example C

### The Potable Water Budget Plan

Developers shall provide a Potable Water Budget Plan demonstrating how the development will stay within the allotted ERC capacity on an annual average basis. The Potable Water Budget Plan shall provide calculations projecting water demands. The initial calculations should show baseline conditions with separate estimates for indoor and outdoor water use. Outdoor baseline demand should be based on estimated irrigable area landscaped with St Augustine sod watered at 1 inch/week. Example D shows an irrigation water calculation method. Demand calculations for the options or designs identified in the potable water budget concept statement must demonstrate that the project will stay within allocated capacity. The Plan may include but is not limited to the options described below.

<b>POTABLE WATER BUDGET OPTIONS</b>
1. Retain native vegetation to remain non-irrigated
2. Install WaterWise landscaping
3. Install microirrigation in bed areas
4. Install reclaimed water system
5. Develop alternative water sources for irrigation
6. Irrigation controlled with advanced technology

The potable water budget options as well as associated requirements are described below.

1. Retain non-irrigated native vegetation on parcel(s).
  - Pre-development vegetation must contain a majority of native species and a minimum of exotic invasive or weedy species to qualify. Initial inspection would determine whether existing vegetation is of a quality to utilize this option. Inspection of the existing vegetation quality shall be conducted following the submission of the Potable Water Budget Concept Statement (Sec. 35.43) and prior to any land clearing.
  - Non-irrigated native vegetation areas of parcel(s) shall be recorded in a Development Order and shall be binding to all future land owners. The development order shall incorporate language to the effect that non-irrigated native vegetation areas are to remain non-irrigated and shall either conserve existing native vegetation or modify landscaping using native plants that would naturally occur in that area or under those ecological conditions. If native vegetation areas are modified, temporary above-ground irrigation may be used to establish plants.
  - Required submittal for final Development Order approval shall be an engineering drawing showing non-irrigated native vegetation areas.
  - Parcel(s) with non-irrigated native vegetation shall install an irrigation meter. Irrigation system inspection shall establish that areas identified in final Development Order engineering plan remain in non-irrigated native vegetation conditions. This irrigation system inspection is conducted by the Environmental Services Department, and is in addition to the inspection of the meter set, rain sensor, and backflow preventer inspection conducted by the Building Department as part of the final plumbing inspection. Water service through the irrigation meter shall not be connected until the irrigation system inspection is complete.
  - Violation of Development Order conditions identified during the irrigation system inspection or any time thereafter shall be considered a Code Enforcement violation, and shall be corrected by adjusting the irrigation system and replanting with native vegetation.
  - For subdivision plats, deed restriction information shall be incorporated into covenants per LDC Sec. 35.43(c)(2) or 35.44(e)(2) as applicable.
2. Install Water Wise landscaping.
  - Plants shall be selected based on site conditions (soil type, soil moisture, light), shall be regionally native species to the greatest extent possible, and shall be medium or low water use plants except where soils are predominantly moist. Water use designations should be based on the Approved Plant Species List (LDC Sec. 30.1229(7)) where appropriate.
  - Plant materials shall be grouped according to their water use designations. The water use groups shall be irrigated on separate zones, and water use zones shall be shown on landscape and irrigation plans.
  - Required submittal for preliminary plan or final plat shall be engineering drawing(s) depicting details of irrigation and landscaping for a typical lot and for all common areas. Percentage of low, medium, and high water need plant areas shall be called out specifically in the plans.

- Landscape design specification commitments made by the developer to meet this section shall be recorded in the Development Order.
- Irrigation controllers installed by the developer shall have adequate programming flexibility to appropriately water high, medium, and low water need plants.
- Irrigation and landscaping inspection shall determine compliance with this option. Parcel(s) utilizing this option shall install an irrigation meter. This irrigation system inspection is conducted by the Environmental Services Department, and is in addition to the inspection of the meter set, rain sensor, and backflow preventer inspection conducted by the Building Department as part of the final plumbing inspection. Water service through the irrigation meter shall not be connected until the irrigation/landscaping inspection is complete.
- Education on the landscaping and irrigation system shall be included with this option. The developer shall designate education responsibilities (likely to be one or more of the following: developer, builder, irrigation specialist or landscaper) and shall develop or obtain educational materials for use by the educator to cover material outlined in Example E. The packet of material shall be submitted as part of the Potable Water Budget Plan.
- For each new homeowner, the educator shall provide the above referenced packet, as well as any of the following that were not included in the packet: as-built irrigation plans, landscape plant species list, chart showing establishment dates for each zone, and pre and post-establishment zone run times and frequencies to reset the controller, irrigation system manual, rotor adjustment key, landscaper warrantee for plants, Homeowners Association landscaping requirements or other deed restrictions on the property.
- An example developer/homeowner affidavit outlining education points on water conserving irrigation system and landscape features shall be submitted during final plat approval.
- Contract purchaser/new homeowners shall sign an affidavit that they have received education on water conserving irrigation system and landscape features (see Example F). A signed affidavit shall be required for the developer/builder to complete the final inspection and receive a CO.

### 3. Install microirrigation to irrigate bed areas.

- Conventional and microirrigation areas shall be on separate zones
- Required submittal for preliminary plan or final plat shall be engineering drawing(s) depicting details of microirrigation for a typical lot and for all common areas as appropriate. The percentage of total irrigated area that uses microirrigation shall be called out specifically in the drawings.
- Irrigation inspection shall determine compliance with this option. Parcel(s) utilizing this option shall install an irrigation meter. This irrigation system inspection is conducted by the Environmental Services Department, and is in addition to the inspection of the meter set, rain sensor, and backflow preventer inspection conducted by the Building Department as part of the final plumbing inspection. Water service through the irrigation meter shall not be connected until the irrigation inspection is complete.
- An additional requirement of this option is education of new homeowners on microirrigation maintenance requirements and zone run times.

- A Developer/homeowner commitment agreement outlining education points on microirrigation use and maintenance shall be submitted during approval of a final Development Order
  - Developer shall designate education responsibilities (likely to be one or more of the following: developer, builder, irrigation specialist or landscaper) and develop or obtain educational materials for use by the educator to cover material outlined in Example G. The packet of material shall be submitted as part of the Potable Water Budget Plan.
  - Contract purchaser/new homeowners shall sign an affidavit that they have received education on microirrigation use and maintenance (See Example H). A signed affidavit shall be required for the developer to complete the final inspection and receive a CO.
4. Install a reclaimed water delivery system and extend a main from the existing system to make reclaimed water available. This option is only available to developments not required to install a reclaimed water system per Sec. 30.1234 LDC (Reclaimed Water Systems - Ordinance No. 2003-37, Aug 26, 2003).
- The acceptability of this option shall be based on an assessment by the Director of the Environmental Services Department as to the availability of reclaimed water to meet the development needs.
  - Inspection shall occur per existing codes and procedures
  - Reclaimed water meters shall be installed and connected to irrigation systems at all service connections.
  - Submittals shall include a signed statement by the Director of the Environmental Services Department as to the availability of reclaimed water. Engineering plans for reclaimed water system shall be submitted per Seminole County Water and Sewer Standards.
5. Install pumps and piping as needed to use alternative water sources for irrigation, such as lakes, stormwater retention ponds, wells, or rainwater cisterns.
- Submittals shall include all applicable permits required by St Johns River Water Management District, engineering drawings of alternative water delivery system(s), and calculations showing the percent of total irrigation water demand that will be obtained from alternative water sources.
  - Alternative water delivery system(s) shall be installed and inspected along with other water and sewer utility features.
6. Irrigation controlled with advanced technology.
- Advanced irrigation technology may include, but is not limited to: 1) all irrigation in the development managed through centralized controls by professional management, 2) soil moisture sensors, 3) ET controllers, and 4) leak detection.
  - Calculations shall be submitted based on irrigable area and historical weather conditions that demonstrate irrigation efficiency that will maintain development water use within ERC values on an annual average basis.
  - Documentation of advanced technology efficiency shall be required

EXAMPLE A: Exemption for parcel(s) irrigating less than 2200 square feet, basis of calculation.

Average Indoor per Capita Water Use

64 gpcd – Average indoor use in Tampa ([http://www.tampagov.net/dept\\_water/conservation\\_education/Customers/Water\\_use\\_calculator.asp](http://www.tampagov.net/dept_water/conservation_education/Customers/Water_use_calculator.asp))

64 gallons per person X 2.55 persons per residence = 163.2 gallons per residence

350 gallons (1 ERC) – 163.2 gallons indoor water use = 196.8 gallons outdoor use

196.8 gallons/day X 7 days/week = 1377.6 gallons/week

1377.6 gallons/week / 27154.29 gallons/acre-inch/week = 0.0507 acres

So, 1377.6 gallons can water 0.05 acres at one inch per week of water

0.0507 acres X 43560 square feet/acre = 2178 square feet

### EXAMPLE B: Potable Water Budget Concept Statement

The purpose of the Potable Water Budget Concept Statement submittal during preliminary planning is to ensure that Budget options or design features will be incorporated throughout the planning process. The Concept Statement shall identify which of the two paths (select among the water budget options provided in the manual, or submit an original study) has been selected, and briefly outline the manual options or study design features that will be included in the Potable Water Budget Plan.

### Potable Water Budget Concept Statement for Residential Subdivision

The Gnarly Oaks subdivision shall meet Potable Water Budget requirements by selecting from options outlined in the Manual. The following options and associated points shall be included.

#### **Option**

1. An average of 35% of parcel's irrigable area shall remain in non-irrigated native vegetation
2. Landscaping shall consist of 80% low water use plants and 20% St Augustine sod
6. ET controllers shall be installed on all units



### EXAMPLE C: Potable Water Budget Plan for Gnarly Oaks Subdivision

The Gnarly Oaks subdivision is located in the northwest section of Seminole County off of Big Oak Lane. It includes 11 parcels zoned for single family residential, and ranging in size from 0.8 to 1.09 acres per parcel. Water and sewer services will be provided by Seminole County Environmental Services Department. Baseline water demand for potable water budget calculations, based on an average of 35% irrigable area per parcel, was 1437 gpd per unit (Table 1).

Pre-development native vegetation is dominated by slash pines (*Pinus elliotii*) and saw palmettos (*Seronea repens*), and includes other common species such as live oak (*Quercus virginiana*), gallberry (*Ilex glabra*), American beautyberry (*Callicarpa americana*), shiny blueberry (*Vaccinium myrsinites*), gopher apple (*Licania michauxii*), and wiregrass (*Aristida stricta*). An inspection by Seminole County Environmental Services staff on October 27, 2004 confirmed that this vegetation is of a quality to consider Option 1 – Retain non-irrigated native vegetation on the parcel. An average of 35% of the irrigable area of each parcel shall remain in non-irrigated native vegetation. Areas of native vegetation to remain on each parcel are shown in Figure 1. Calculations for potable water demand reduction from non-irrigated areas are shown in Table 2.

To further reduce water demand, 80% of the remaining irrigated area shall be planted with low water use plants. A large part of the low water use landscaping will consist of using bahia for lawn in the back yard. A landscaping and irrigation plan for a typical lot is shown in Figure 2 (not included in the manual). Education on water wise landscaping shall be provided by the Builder's landscaping subcontractor, and is included in their contract as a deliverable. An example education packet is attached to this plan (not included in the manual). Calculations for potable water demand reduction from water wise landscaping are shown in Table 3.

To achieve the additional water demand reduction required in the potable water budget plan, the landscape subcontractor will install Acme ET Sensors. Studies conducted by the University of Pohawkee demonstrated that ET sensors reduced water use on an annual average basis by 25%. This estimate was incorporated into the demand calculation (Table 4), and demand was reduced to an average of 337 gpd.

#### EXAMPLE D: Irrigation Water Calculation

Example of irrigation water calculation based on annual average irrigation of 1 inch per week.

1 acre-inch per week = 27154.29 gallons

27154.29 gallons X number of acres to be irrigated = gallons per week

Gallons per week / 7 days per week = gallons per day

In this example, gallons per day are calculated to determine water demand to compare with ERC allocation. However, watering restrictions limit still limit watering to two days per week.

## EXAMPLE E: Outline of education information for Option 2

### Education Program For Water Efficient Landscaping *Name of Subdivision*

#### Intro to Water Efficient Landscaping

- Central FL water issues, purpose and need
- Subdivision water budget agreements

#### Your irrigation system and how it works

- Watering restrictions for property
- Irrigation meter (if installed)
- Controller settings and functions
- Start times and relationship of water pressure and peak irrigation periods
- Controller backup battery location and replacement
- Rain sensor, seasonal settings, and testing
- Backflow preventer function and annual testing
- Adjusting rotor spray pattern

#### Irrigation zones for groups of plants with different water needs

- St Augustine lawn or other plants with high water demand
- Bahia lawn and alternative groundcovers with moderate water needs
- Beds containing plants with moderate water needs
- Beds containing plants with minimum water needs

#### Establishing a new landscape

- Watering restrictions for high volume irrigation
- Sodded lawn, one month
- Other groundcovers and small plants without woody stems, one month
- Shrubs and Trees
  - Establish quickest with light frequent irrigation
  - Three months per inch of trunk diameter
  - Once a day for a month
  - Twice a week for one month (shrubs) or two months (trees) depending on size
  - Weekly until fully established
  - Each time apply 2-3 gallons per inch of trunk diameter
  - Water both in and outside of root ball so roots will grow into surrounding soil
- To stay within the watering restrictions, water by hand or with microirrigation, both are exempt from watering restrictions.

#### Zone run times

- Date of landscape installation and one month date to return to watering restrictions (if appropriate)
- Establishment periods for each zone, before and after run times and frequencies
- Post-establishment run times and frequency for high water demand plants
- Post-establishment run times and frequency for moderate water need plants

- Post-establishment run times and frequency for minimum water need plants, should be zero except during very hot dry weather
- Seasonal adjustments

#### Maintaining Water Efficient Landscaping

- Walk irrigation system monthly, run each zone and examine each sprinkler for leaks and needed adjustments
- Replace backup battery 2x/year when changing clocks
- Mulch annually – maintains soil moisture, reducing irrigation need (understand undesirable environmental impacts of some mulches)
- Fertilize lawn 2x/year with slow release fertilizer (low phosphate fertilizers have less impacts to nearby lakes and rivers)
- Maintenance and fertilizer needs of other plants landscape plants
- Check rain sensor functioning annually (before mid-summer rainy season)
- Replace rotors and sprayheads with same brand and coverage pattern (and for rotor, same nozzle size)

#### Provide to new homeowner

- Irrigation system as-built
- Plant species list by irrigation zone
- Irrigation system manuals as appropriate
- Rotor adjustment key
- Landscaper warrantee for plants
- Homeowners Association landscaping requirements or other deed restrictions on the property
- Laminated chart showing establishment dates for each zone, and pre and post-establishment zone run times and frequencies to reset the controller

EXAMPLE F: New Homeowner Landscape Education Affidavit

Affidavit for  
Water Efficient Landscaping Education

I, \_\_\_\_\_, hereby indicate by my signature below that the builder, landscaper, and/or irrigation specialist has provided sufficient education, literature, and other tools that I:

- ☐ Understand the need for water efficient landscaping
- ☐ Understand the commitments made to Seminole County Government by the developer/builder to create a water efficient subdivision
  
- ☐ Know what my watering days are
- ☐ Can set and change settings on the irrigation controller
- ☐ Know how and how often to replace the controller backup battery
- ☐ Know how to test the rain sensor for functioning
- ☐ Know how and when to change the rain sensor settings
- ☐ Understand the plant water needs for each irrigation zone
  
- ☐ Understand that different size plants have different establishment periods
- ☐ Understand that zone run time and watering frequency can be reduced once plants are established
- ☐ Know when and how to adjust zone run times and watering frequency for each zone once plants are established
- ☐ Understand that plant watering needs vary seasonally and know when and how to change zone run times seasonally
  
- ☐ Know how to replace rotors, rotor nozzles, and sprayheads
- ☐ Know how to adjust rotor spray pattern
- ☐ Understand the importance of mulch and know how often to replace it
- ☐ Know how often to fertilize lawn and understand why it is important to minimize fertilizer use

Have received from builder, landscaper, or irrigation specialist

- ☐ As-built irrigation plans
- ☐ Landscape plant species list
- ☐ Laminated chart showing establishment dates for each zone, and pre and post-establishment zone run times and frequencies to reset the controller
- ☐ Irrigation system manual
- ☐ Rotor adjustment key
- ☐ Landscaper warrantee for plants
- ☐ Homeowners Association landscaping requirements or other deed restrictions on the property

\_\_\_\_\_  
Homeowner Signature

\_\_\_\_\_  
Date

## EXAMPLE G – Outline of microirrigation education information for Option 3

### Education Program For Microirrigation *Name of Subdivision*

#### Intro to Water Efficient Landscaping

- Central FL water issues, purpose and need
- Subdivision water budget agreements

#### Your irrigation system and how it works

- Watering restrictions for property
- Irrigation meter (if installed)
- Controller settings and functions
- Start times and relationship of water pressure and peak irrigation periods
- Controller backup battery location and replacement
- Rain sensor, seasonal settings, and testing
- Backflow preventer function and annual testing
- Adjusting rotor spray pattern

#### Microirrigation zones

- Beds containing plants with moderate water needs
- Beds containing plants with minimum water needs where irrigation can be eliminated once plants are established

#### Establishing a new landscape

- Groundcovers and small plants without woody stems, one month
- Shrubs and Trees
  - Establish quickest with light frequent irrigation
  - Three months per inch of trunk diameter
  - Once a day for a month
  - Twice a week for one month (shrubs) or two months (trees) depending on size
  - Weekly until fully established
  - Each time apply 2-3 gallons per inch of trunk diameter
  - Water both in and outside of root ball so roots will grow into surrounding soil

#### Zone run times

- Establishment periods for plants in microirrigation zone, and run times and frequencies during the establishment period
- Post-establishment run times and frequency for moderate water need plants
- Post-establishment run times and frequency for minimum water need plants, should be zero except during very hot dry weather
- Seasonal adjustments

#### Features of Microirrigation system

- Pressure regulator
- Filters

**Draft 9/14/04**

- Flush valves

#### Maintaining Water Efficient Landscaping

- Walk irrigation system monthly, run each zone and examine each sprinkler for clogs, leaks and needed adjustments
- For microirrigation zones, check for clogged sprayheads and improperly oriented spray patterns
- Cleaning or replacing sprayheads
- Filter replacement schedule
- Flushing schedule
- Replace backup battery 2x/year when changing clocks
- Mulch annually – maintains soil moisture, reducing irrigation need (understand undesirable environmental impacts of some mulches)
- Maintenance and fertilizer needs of landscape plants
- Check rain sensor functioning annually (before mid-summer rainy season)

#### Provide to new homeowner

- Irrigation system as-built
- Plant species list by irrigation zone
- Irrigation system manuals as appropriate
- Rotor adjustment key if appropriate
- Landscaper warrantee for plants
- Homeowners Association landscaping requirements or other deed restrictions on the property
- Laminated chart showing establishment dates for each zone, and pre and post-establishment zone run times and frequencies to reset the controller

IFAS fact sheet AE-254, Microirrigation in the landscape

EXAMPLE H: New Homeowner Microirrigation Education Affidavit

Affidavit for  
Microirrigation Education

I, \_\_\_\_\_, hereby indicate by my signature below that the builder, landscaper, and/or irrigation specialist has provided sufficient education, literature, and other tools that I:

- ☐ Understand the need for water efficient landscaping
- ☐ Understand the commitments made to Seminole County Government by the developer/builder to create a water efficient subdivision
  
- ☐ Know what my watering days are
- ☐ Can set and change settings on the irrigation controller
- ☐ Know how to replace the controller backup battery, and how often to replace the battery
- ☐ Know how to test the rain sensor for functioning
- ☐ Know how and when to change the rain sensor settings
  
- ☐ Understand the plant water needs for each microirrigation zone
- ☐ Understand that different size plants have different establishment periods
- ☐ Know when and how to adjust zone run times and watering frequency for each zone once plants are established
- ☐ Understand that plant watering needs vary seasonally and know when and how to change zone run times seasonally
  
- ☐ Know how to replace microirrigation sprayheads or other equipment
- ☐ Know how to clean filters and flush the microirrigation system
- ☐ Understand the importance of mulch and know how often to replace it

Have received from builder, landscaper, or irrigation specialist

- ☐ As-built irrigation plans
- ☐ Landscape plant species list
- ☐ Laminated chart showing establishment dates for each zone, and pre and post-establishment zone run times and frequencies to be displayed by controller
- ☐ Irrigation system manual
- ☐ Rotor adjustment key
- ☐ Landscaper warrantee for plants
- ☐ Homeowners Association landscaping requirements or other deed restrictions on the property

\_\_\_\_\_  
Homeowner Signature

\_\_\_\_\_  
Date



## Example Water Budget Plan Calculations

**Table 1. Baseline**

Lot Number	Lot Size (acre)	Estimated Irrigated Area=35% (acre)	Est Sod Irrigation Demand (gal/week)	Est Sod Irrigation Demand (gal/day)	Indoor Demand (gal/day)	Total Water Demand (gal/day)
51	0.82	0.287	7793	1113	163.2	1277
52	0.89	0.312	8459	1208	163.2	1372
53	0.8	0.280	7603	1086	163.2	1249
54	0.81	0.284	7698	1100	163.2	1263
55	0.89	0.312	8459	1208	163.2	1372
56	1.03	0.361	9789	1398	163.2	1562
57	1.09	0.382	10359	1480	163.2	1643
58	1	0.350	9504	1358	163.2	1521
59	1.04	0.364	9884	1412	163.2	1575
60	1	0.350	9504	1358	163.2	1521
61	0.95	0.333	9029	1290	163.2	1453

**Table 2. Option 1 - 35% of parcel left in unirrigated native vegetation**

Lot Number	Lot Size (acre)	Estimated Irrigated Area (acre)	Unirrigated Native Veg Area=35% (acre)	New Irrigated Area (acre)	Est Sod Irrigation Demand (gal/week)	Est Sod Irrigation Demand (gal/day)	Indoor Demand (gal/day)	Total Water Demand (gal/day)
51	0.82	0.287	0.100	0.187	5066	724	163.2	887
52	0.89	0.312	0.109	0.202	5498	785	163.2	949
53	0.8	0.280	0.098	0.182	4942	706	163.2	869
54	0.81	0.284	0.099	0.184	5004	715	163.2	878
55	0.89	0.312	0.109	0.202	5498	785	163.2	949
56	1.03	0.361	0.126	0.234	6363	909	163.2	1072
57	1.09	0.382	0.134	0.248	6734	962	163.2	1125
58	1	0.350	0.123	0.228	6178	883	163.2	1046
59	1.04	0.364	0.127	0.237	6425	918	163.2	1081
60	1	0.350	0.123	0.228	6178	883	163.2	1046
61	0.95	0.333	0.116	0.216	5869	838	163.2	1002

**Table 3. Option 2 - Waterwise landscaping at percentages indicated, along with Option 1**

Lot Number	Lot Size (acre)	Irrigated Area w/ Option 1 (acre)	Low Water Use Plant Area @ 80% (acre)	Sod Area @ 20% (acre)	Est LWU Irrigation Demand (gal/week)	Est Sod Irrigation Demand (gal/week)	Est LWU Irrigation Demand (gal/day)	Est Sod Irrigation Demand (gal/day)	Indoor Demand (gal/day)	Total Water Demand total gpd
51	0.82	0.187	0.149	0.037	405	1013	58	145	163.2	366
52	0.89	0.202	0.162	0.040	440	1100	63	157	163.2	383
53	0.8	0.182	0.146	0.036	395	988	56	141	163.2	361
54	0.81	0.184	0.147	0.037	400	1001	57	143	163.2	363
55	0.89	0.202	0.162	0.040	440	1100	63	157	163.2	383
56	1.03	0.234	0.187	0.047	509	1273	73	182	163.2	418
57	1.09	0.248	0.198	0.050	539	1347	77	192	163.2	433
58	1	0.228	0.182	0.046	494	1236	71	177	163.2	410
59	1.04	0.237	0.189	0.047	514	1285	73	184	163.2	420
60	1	0.228	0.182	0.046	494	1236	71	177	163.2	410
61	0.95	0.216	0.173	0.043	469	1174	67	168	163.2	398

**Table 4. Option 6 - installation of ET Sensor, along with Options 1 and 2**

Lot Number	Lot Size (acre)	Est LWU Irrigation Demand (gal/day)	Est Sod Irrigation Demand (gal/day)	Indoor Demand (gal/day)	Irrigation Demand w/ ET Sensor (gal/day)	Total Water Demand (gal/day)
51	0.82	58	145	163.2	152	315
52	0.89	63	157	163.2	165	328
53	0.8	56	141	163.2	148	311
54	0.81	57	143	163.2	150	313
55	0.89	63	157	163.2	165	328
56	1.03	73	182	163.2	191	354
57	1.09	77	192	163.2	202	365
58	1	71	177	163.2	185	349
59	1.04	73	184	163.2	193	356
60	1	71	177	163.2	185	349
61	0.95	67	168	163.2	176	339

Average = 337

## Assumptions

Estimated Irrigated Area for Baseline was calculated as 35% of lot size for this exercise, actual percent will vary by lot and home sizes

Estimated Sod Irrigation Demand was based on an annual average of 1 inch of water per week needed by St Augustine sod

Indoor Demand was based on 64 gallons per person per day times 2.55 persons per residential unit

Unirrigated Native Veg Area was based on 35% for this example, but can be varied to meet ERC demand

Low Water Use Plant Area was based on 80% for this example, but can be varied to meet ERC demand

Sod Area was based on 80% for this example, but can be varied to meet ERC demand

Est LWU Irrigation Demand for this example was based on an annual average of 0.1 inch of water per week

and assumes that low water use zones will be watered seasonally during hot dry conditions once plants are established

Irrigation Demand w/ ET Sensor for this example was based on an annual average water savings of 25% compared to conventional irrigation controller and rain sensor.